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THEODORE ROOSEVELT AS NATURALIST.

Theodore Roosevelt. An Autobiography. Pp. xii + 647. (London: Macmillan and Co., Ltd., 1913.) Price 10*s.* 6*d.* net.

THE autobiography of Theodore Roosevelt is a very interesting book to the politician or to the political anthropologist; but here I am rightly restricted to reviewing only that part of the book which touches on natural science.

When Mr. Roosevelt entered upon office as President, he found the American Government as represented by Congress and the Senate, comparatively indifferent to the conservation of beauty in the United States—beauty in the form of magnificent trees, magnificent wild beasts, remarkable and beautiful birds, and romantic landscapes. American Senators and Congressmen did not see—any more than British Chambers of Commerce see—that all such things were assets of great national value, of economic importance, indeed. The destruction of bird life throughout the United States was already causing far-reaching plagues of insects, which consumed fruit and vegetables on the extravagant scale in which all natural movements are carried out in North America. American politicians did not appreciate the frightful damage which was being done to the whole North American Continent—Canada as well as the United States—by the unchecked forest fires and the lumberman's lust for destruction amongst the timber of the United States' forests, without any thought of simultaneous measures being taken for reafforestation.

Mr. Roosevelt was not, of course, the first or the greatest pioneer in a movement which has already had most beneficial results in the conservation of beauty and natural resources, and has culminated in the attempt of the United States to set right the bird question throughout the world. Already in the 'eighties and 'nineties of the last century the idea of national parks had come into existence. The Yellowstone region was set apart as a reserve in which natural phenomena, natives trees, and native wild beasts could continue to exist for the wonderment and delight of a new generation. The Yosemite Valley and the big trees of California had been similarly protected from unreasoning destruction. But Theodore Roosevelt, though he had won his spurs as a hunter (and the best book that he wrote about wild life, by-the-by, is not his excellent work on East Africa, but "Outdoor Pastimes of an American Hunter"), had, by the time he became Vice-President, conceived a great love for the natural beauties of a landscape and the presence therein of bird and beast.

During his seven and a half years tenure of the United States Presidency Mr. Roosevelt established, or caused to be established, fifty-one national bird reservations in seventeen of the United States, as well as in Porto Rico, Hawaii, and Alaska. Amongst these reservations was the celebrated Pelican Island rookery in Indian River, Florida—now world-famous from the beautiful scenes depicted by photography and kinematography; the Mosquito Inlet reservation in Florida (chiefly for the protection of the manati), the reservation of the Klamarth lake and marsh in Oregon (chiefly for the wild ducks, geese, and swans of the western United States); the Tortugas Quay, Florida, for studying the habits of seabirds and migratory birds; and the great bird colonies (for the protection of albatrosses and petrels) on the Island of Laisan in the Hawaii group, in which direction he intervened after the appalling revelations of bird slaughter by the plumage hunters were made known through the efforts of Dr. Hornaday, Mr. James Buckland, and others. His influence brought about the creation of five national parks—in Oregon, in South Dakota, Oklahoma, North Dakota, and Colorado, and the organisation of four big game reserves in Oklahoma, Dakota, Montana, and Washington, and game laws and game reservations in the vast territory of Alaska.

Mr. Roosevelt also secured the enactment of measures which in the United States not only saved the remains of the bison from extermination, but have led to the gradual increase in numbers and possible future existence of this remarkable bovine. But he has not yet succeeded in making the American Republic call the bison by its right name, instead of the misleading title of buffalo. He is, I fear, rather an advocate for the retention or adoption of a whole series of American misnomers—elk instead of wapiti; bobcat instead of lynx, mountain-lion instead of puma. In most cases these American terms are the more to be regretted since, with the exception of the puma, nearly all the great mammals of North America had representatives in the fauna of temperate Eurasia, and the English names for these creatures (wapiti, it is true, is Canadian) have a great ancestry going back to the earliest development of Aryan speech in the days of improved stone implements.

What Mr. Roosevelt did for forest preservation is set forth somewhat meagrely in the book under

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review. Since his quitting the Presidency there has been a set-back under the four years of Mr. Taft, when the recalcitrant party in the Senate got its way, and the lumbermen were once more permitted to destroy unreasoningly. Mr. Roosevelt thoroughly appreciates the fact that the re-afforesting of the United States is a matter of vital importance for climatic reasons, as well as for others, and that the disforesting of these vast territories either by the woodman's axe or by the forest fires, would be a legitimate cause of complaint for the adjoining Dominion of Canada, as the climate of Canada would be affected disadvantageously.

H. H. JOHNSTON.

AMERICAN TEXT-BOOKS OF BIOLOGY.

(1) *A Laboratory Manual of Invertebrate Zoology.* By Dr. G. A. Drew. Second edition, revised. Pp. ix + 213. (London and Philadelphia: W. B. Saunders Company, 1913.) Price 6*s.* net.

(2) *A Text-book of Biology.* For Students in Medical, Technical, and General Courses. By Prof. W. M. Smallwood. Pp. xiv + 285 + xiii plates. (London: Baillière, Tindall and Cox, 1913.) Price 10*s.* 6*d.* net.

(1) DR. DREW'S manual gives directions for the study of ninety-two invertebrates. The accounts of the various types selected for examination are noteworthy for the attention devoted to the reactions of the living creatures, and for the questions designed to test whether the student understands the functions of the several organs and comprehends the adaptations exhibited. In this second edition, the author has cited, at the end of the description of most of the types, a few of the chief memoirs dealing with those types. This is an excellent feature of the book, for the student who follows the lead given will be introduced to the literature of the subject and to the means of becoming acquainted with some of the best methods of modern zoological research. Little consideration is devoted to the larval stages and life-cycles of the types studied, and a detailed account of the internal anatomy of many of the types is not given; the author's intention has evidently been to single out the external features for special study in relation to adaptation. There are descriptions of twelve Polychætes, but of only two insects—a grasshopper and a bee; an account of one of the Diptera, *e.g.*, a mosquito, might have been added with advantage. The descriptions are carefully done, there being very few mistakes. In the section on Gregarina, the organism is said to encyst and form a spore-producing individual—a rather misleading statement. This portion of the life-cycle might have been treated in more detail, and reference made to the formation of gametes and of spores and sporozoites. The poison ducts of Lithobius open on the outer (not on the inner) sides of the second maxillæ.

An appendix contains precise instructions for making permanent preparations of organisms or of parts of them, and there is a useful glossary of terms employed in the book.

The student who works intelligently through the series of types selected for study will acquire a good general knowledge of the structure and chief adaptations exhibited by invertebrates.

(2) Prof. Smallwood has produced an interesting and readable volume, intended chiefly for medical students. Taking the frog as a convenient type, the author describes the physiology of movement, digestion, circulation, and metabolism, and then proceeds to outline the histology of the tissues, the structure of the nervous system, and the development (external features only). A brief account of Hydra and a very short sketch of the Protozoa follow. Succeeding chapters deal with the biology of cells and of yeasts and moulds, parasitism, some biological factors in disease, evolution, variation, heredity, and animal behaviour in its relation to mind. The chapters on variation and animal behaviour are especially interesting, as the illustrative examples are drawn from recent literature. The volume ranges over a wide field, and the accounts of some of the subjects are necessarily brief; in a few cases they are too brief to be of much value to the average student. The account of malaria will not give the student a very clear idea of the life-cycle, for, although the author states that the number of parasites becomes very great, he does not indicate the manner in which this large increase in number is brought about. But the author obviously intends his book to be supplemented by other instruction in the laboratory and lecture-room.

Several mistakes have been allowed to pass, *e.g.*, Bothriocephalus is cited as a type of the Round-worms, sea-anemones are included under Hydrozoa, malaria is stated to occur in frogs, and there are mis-spellings, *e.g.*, Wiederscheim, Unchinaria, etc.

The book contains 243 figures and 13 plates; the illustrations are nearly all well chosen and excellently reproduced, but the figure of Stomoxys represents a fly of entirely different aspect—certainly not a Stomoxys.

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